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ENVIRONMENTAL HEARING BOARD

L EXPANSION OF SEWAGE TREATMENT PLANT

TOWN OF DUNDAS

REGIONAL MUNICIPALITY OF HAMILTON-WENTWORTH

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GOVERNMENT DOCUMENTS

Held in Dundas Town Hall
60 Main Street, Dundas,
Ontario on October 21, 1975

Nethercut & Company Limited
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44 York Street
Toronto, Ontario

VOLUME I



ENVIRONMENTAL HEARING BOARD

EXPANSION OF SEWAGE TREATMENT PLANT
TOWN OF DUNDAS
REGIONAL MUNICIPALITY OF HAMILTON-WENTWORTH

Dundas Town Hall
60 Main Street
Dundas, Ontario
October 21, 1975

BEFORE:

D. Caverly - Chairman

D. Morton - Member

L. Venchiarutti - Member

M.J. Cathcart - Acting Secretary

H. Browne - Technical Advisor

APPEARANCES:

R. Plant - Solicitor for
Hamilton-Wentworth

Nethercut & Co. Ltd.
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44 York Street
Toronto, Ontario

Per: D. Pierce



1 --- Upon resuming at 3:00 p.m.

2
3 BRIEF PRESENTED BY DR. GRAHAM P. HARRIS

4 MR. HARRIS: Mr. Chairman, Members
5 of the Board, Ladies and Gentlemen:

6 As many local people, particularly
7 the local politicians of Dundas and the Regional
8 Municipality, will know, I have been closely
9 associated with this issue of Coote's Paradise
10 and sewage effluent from the beginning. Indeed
11 it was an article about my research in the marsh
12 in the local newspaper (The Spectator) which
13 started the whole public debate. I can claim
14 some expertise in this matter as, despite inaccurate
15 and vicious rumors to the contrary, I hold a Ph.D.
16 in Ecology and I am the author of a number of
17 scientific papers in the international literature
18 concerning aquatic productivity.

19 Other speakers at this hearing will
20 have, I am sure, concerned themselves with the
21 public concerns regarding water quality in the
22 marsh. According to your terms of reference we
23 are to address ourselves to the issue of "whether
24 the use and operation of the proposed treatment plant
25 expansion would or would not be in the public



1 interest." I merely wish to reiterate that
2 continued pollution of Coote's Paradise by the
3 present or the proposed expanded treatment plant
4 cannot be tolerated and is certainly not in the
5 public interest. The value of Coote's Paradise
6 to the Region as a recreation area and wildlife
7 conservation area cannot be overemphasized.

8 The area is unique in many respects. This fact
9 has been recognized by the Regional Council, in
10 that, a set of water quality goals for Coote's
11 Paradise have been set by the Royal Botanical
12 Gardens and agreed to by Council.

13 In this brief I wish to review the
14 present status of the water quality in the marsh.
15 Further, using guidelines, published by NBC, the
16 U.S. EPA and the Ontario Ministry of the Environment,
17 I will make some predictions of phosphorus and
18 nutrient loading and future water quality
19 conditions.

20 My graduate student, Mr. Bacchus, commenced
21 our research in Coote's Paradise in the spring of
22 1973. Sampling commenced at 13 stations, spread
23 throughout the marsh in June 1973 and was continued
24 for one year. The results obtained formed the
25 basis of Mr. Bacchus' Masters thesis and for a



1 paper published in Water Pollution Research in
2 Canada, 1974. A further publication is in prepara-
3 tion. Our conclusions are summarized in Table 1.

4 Briefly our conclusions are as follows:

5 1. In the Desjardins Canal conditions of high
6 BOD and low oxygen saturation cause phosphorus
7 mining from the sludge in the sediments. In the
8 summer of 1973 periodic inputs from the existing
9 plant lowered the O_2 saturation in the water of
10 the canal and injected up to 30 ppm of Ammonia.
11 The NH_3 was subsequently nitrified to NO_3 and
12 stimulated algal growth in the West Pond. Soluble
13 Reactive Phosphorus (SRP) averaged 11.26 ppm in
14 summer.

15 2. In the West Pond the algal biomass was huge
16 (up to $3900 \text{ mg Chl}_a/\text{m}^3$) and productivity very
17 high. Supplied by NO_3 and SRP from the plant,
18 frequent algal blooms occurred followed by crashes
19 and further anoxia. This was accompanied by
20 further phosphorus mining from the very loose
21 fluffy organic sediments. Because of the high
22 SRP levels the algae were nitrogen limited and
23 the blooms coincided with the NH_3 output from
24 the plant, thus conclusively implicating the
25 treatment plant as the controlling agent of



productivity in West Pond.

3. Spencer Creek brings in a heavy seasonal load of suspended solids, particularly in spring, and shows highly seasonal flow patterns. The outflow from West Pond, after the biological activity, is relatively low in phosphorus and very low in Nitrogen. Spencer Creek to some extent rectifies the N:P ratio of the water in summer and together the two flows join to enter the main area of the marsh.

4. The Main Area is still to be classed as highly eutrophic. Turbidity and chlorophyll remain very high, there is little light penetration, no rooted aquatic plant growth and frequent anoxia at the bottom of the water column. The nutrient input from Spencer Creek and West Pond ensures a biomass of close to 200 mg/m^3 Chlorophyll in summer with a standing bloom of phytoplankton. These eutrophic conditions have served to drastically reduce the diversity of species of benthic organisms, fish and aquatic vegetation.

In short our researches demonstrated that the existing treatment facility was producing an effluent of terrible quality and that this current effluent together with the existing sludge



1 which has settled out in the bottom of the west
2 end of the marsh was seriously polluting Coote's
3 Paradise. These conclusions have never been
4 accepted by many influential local and regional
5 politicians and bureaucrats. Indeed the response
6 by some has been to wage a campaign of vilification
7 and innuendo against me personally. In order, I
8 must assume, to further discredit my work the
9 Regional Council took it upon itself to ask the
10 Ontario Ministry of the Environment to repeat
11 the limnological survey that we had carried out.
12 This study is not yet complete but fortunately
13 (or unfortunately) from my conversations with the
14 staff carrying out the study I think I can say
15 that in all major respects our data and conclusions
16 have been repeated and agreed with. Indeed the
17 local Ontario Ministry of Environment office has
18 been distributing a copy of our published paper
19 when asked for information, because their own
20 final report is not yet completed

21 As a further check on the credibility
22 and professional abilities of both myself and the
23 Ontario Ministry of the Environment, the students
24 of Parkside High School have repeated some of the
25 sampling once again and, using much less sophisticated



1 methods, have also reached the same conclusions.
2 Surely three independent studies all reaching the
3 same obvious conclusion cannot all be wrong. My
4 only regret is that while we all studied, talked
5 and politicked, the sewage continued to flow.

6 This brief resume of the situation
7 was necessary as any expansion of the existing
8 plant must be considered in the light of the
9 existing situation. There can be no doubt that
10 an expansion of the existing plant will lead to an
11 improvement of the effluent quality. However, I
12 will attempt to show that if we are to maintain
13 Coote's Paradise as a conservation area and if we
14 are to meet the agreed water quality goals then
15 even an expanded secondary treatment plant with
16 nutrient removal is completely unacceptable.

17 As we cannot discuss the location
18 of the outfall at this time then we must assume
19 that, at least for the time being, the effluent
20 will continue to be discharged into the marsh as
21 it is now. Using data and guidelines published
22 by the Ontario Ministry of the Environment, by the
23 National Research Council of Canada, and by the
24 United States Environmental Protection Agency,
25



1 it is possible to derive approximate maximum
2 nutrient loading figures for a body of water
3 with a given residence time and surface area.
4 Using presently available data this can be done
5 for Coote's Paradise (Table 2) assuming that the
6 two major inputs are Spencer and Ancaster Creeks
7 and the treatment plant. (An assumption borne
8 out by sampling data.) The residence times of
9 Coote's Paradise vary greatly on a seasonal
10 basis (as the flow in Spencer Creek varies) so
11 the data must be treated seasonally (Table 2).
12 The major conclusions from such calculations are
13 as follows:

14 1. The residence times of Coote's Paradise are
15 Winter 15.7 days, Spring 1.6 days, Summer 39 days
16 and Fall 4 days. Assuming seasonal flows in
17 Spencer creek and 1.5 mgd from the plant.

18 I won't go through all the figures
19 which are in the Brief, but the significant figure
20 is that in Summer the maximum permissible loading
21 appears to be in the order of .3 grs of PO_4/m^2 yr.

22 Except in spring the Spencer Creek
23 input is sufficient to nearly meet the maximum
24 permissible loading. In spring the through flow
25 of water is so rapid that most of the nutrient



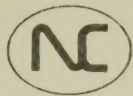
1 input will be swept straight into Hamilton Harbour.
2 The short-fall between the Spencer
3 Creek input and what might be regarded as the
4 highest permissible loading is approximately 0.15
5 grams per square meter per year (except in Spring).
6 This value (when multiplied by the surface area
7 of Coote's Paradise open water) may be converted
8 to a loading of phosphorus in lbs/day. In summer
9 (the most critical period) the inputs of phosphorus
10 are as follows:
11 Max permitted loading 2.92 lbs/day
12 Spencer Creek 1.42 lbs/day
13 . . . Treatment Plant 1.50 lbs/day
14 Therefore the max. permitted loading from the plant
15 must be no greater than 1.5 lbs/day if we are to
16 meet the published guidelines.
17 The inputs from the following categories are:
18 Present Plant 1.5 mgd 3 ppm PO_4 45 lbs/day
19 Present Plant & mining 105 lbs/day
20 New plant 1.5 mgd 1 ppm 15 lbs/day
21 New plant & Tertiary nutrient
22 removal (best possible effluent) 1.5 lbs/day
23 (From my discussions with the Ministry of Environment
24 I understand that these present loading estimates
25 are highly conservative). All of which indicates



1 clearly that under no circumstances can a secondary
2 treatment plant (even with Alum nutrient removal)
3 be allowed to discharge effluent into the marsh.
4 Either a tertiary high quality effluent must be
5 discharged or the effluent must be piped elsewhere.
6 Furthermore, the mining of phosphorus from the
7 sediments of the Canal and through West Pond must
8 be stopped. This can only be achieved using a
9 high quality effluent and by dredging the old
10 sludge out of the canal. It is impossible to
11 discuss the operation of an expanded treatment
12 plant without a knowledge of the outfall placement
13 when the existence of phosphorus mining from old
14 sludge is considered.

15 One possible solution, and I offer
16 this as a suggestion for the Board's consideration,
17 would be not to move the outfall site, to discharge
18 a tertiary effluent and to dredge the Canal and
19 West Pond area. The dredgings could be side cast
20 into low berms which could be used to create a
21 number of small polishing ponds. Some landscaping
22 with the control of water levels and dredging is,
23 I believe, desirable.

24 If the plant is not designed to produce
25 a tertiary effluent then we must resign ourselves



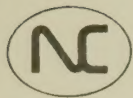
1 to using West Pond, as it is now, as a sewage
2 lagoon. The proposed plant appears to be designed
3 to meet a 15 mg/l BOD standard. With a maximum
4 rated capacity of 4 mgd this will amount to 600 lbs/day
5 B.O.D. Assuming a surface area of 6 acres for
6 West Pond we get a B.O.D. loading of 100 lbs/acre/
7 day. According to the design handbook that I
8 checked, the maximum normal rated capacity of a
9 sewage lagoon, designed to receive raw sewage
10 is only 20 lbs/acre.day. B.O.D. Thus the effluent
11 from the proposed treatment plant will far exceed
12 the normal rates capacity of a sewage lagoon. I
13 am not prepared to see this happen. We cannot
14 continue to use part of a wildlife preserve with
15 stated water quality goals in this fashion.

16 Further the proposed treatment plant
17 design includes no facilities for Nitrogen removal.
18 To meet the stated water quality goals it will be
19 essential to produce a balanced effluent. The
20 present and proposed plants will produce 8-10
21 ppm NH_3 . To balance the effluent of a tertiary
22 plant to ecologically acceptable N:P ratios the
23 Nitrogen must be removed down to the 1-2 ppm
24 level. There are techniques available to do this
25 but none are proposed.



1 As I understand it, then, the design
2 of the proposed expansion includes minimal nutrient
3 and carbon removal facilities. The application
4 of the 1 ppm PO₄ Great Lakes International Joint
5 Commission guideline, and the discharge of high
6 B.O.D. loadings to a restricted area like Coote's
7 Paradise makes no sense at all as I have demonstrated.
8 Further the proposed design has no apparent facilities
9 for holding effluents in the case of mechanical
10 failure or storm. It is nonsense to design a
11 plant to produce a high quality effluent (which it
12 is seen is essential) if all the improvements in
13 water quality are negated at intervals by the
14 discharge of poorly treated or untreated wastes.
15 If we are to maintain the water quality goals
16 accepted by the Region a high quality tertiary
17 effluent must be produced and the plant must be
18 designed in such a way as to make bypassing
19 completely unnecessary or impossible. If bypassing
20 occurs then in a few years a bank of sludge will
21 once again build up and we will be back to
22 square one.

23 Thus the proposed plant, although it
24 will certainly produce an effluent better than
25 the present terrible flow, will exceed the accepted



maximum phosphorus loading by a factor of 10, will exceed the accepted sewage lagoon loading by a factor of up to 10 and will have no nitrogen removal facilities. In short the proposed extension will do little or nothing to improve the present highly eutrophic conditions in the marsh.

We must also look very carefully at the projected population growth in the region.

We have already shown that the summer maximum permissible loading from the treatment plant is 1.5 lbs/day. Assuming the following populations at 80 gals/day capita and a 1 ppm effluent (with Alun removal) the PO_4 loadings are as follows:

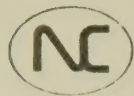
Population	Plant loading	flow	Max. Permissible loading
20,000	16 lbs/day	1.6 mgd	3 lbs/day
50,000	40 lbs/day	4 mgd	4 lbs/day
100,000	80 lbs/day	8 mgd	6 lbs/day
300,000	240 lbs/day	24 mgd	19 lbs/day

The maximum permissible loading increases as the flow through the plant reduces the residence time in Coote's Paradise. Note that a tertiary plant producing the best possible effluent (0.1 ppm PO_4) which would produce one tenth of the above loadings might be permissible as in all cases the maximum permissible loadings would be only slightly exceeded.



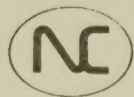
Clearly, however, the proposed secondary treatment plant even with Alum nutrient removal is quite unacceptable and any further population growth and increase in development would soon place Coote's Paradise in a situation where the water quality will have deteriorated even further than it has at present.

We must all be very much aware, therefore, that concentrations are not the way to look at nutrient loadings. In terms of pounds of nutrients per day the present plant is terrible, the proposed plant exceeds the permitted loading by a factor of 10 and any development and increase of population served by the plant will make the situation even worse. Thus I wish to suggest to the Board, in the most forceful manner possible, that absolute discharge limits be set for the new plant. I understand that this has already been done in Milton, Orangeville and Georgetown. In a situation such as this where, in the west end of the marsh no other flow is available to dilute the effluent, these limits must be stringent. I would suggest not more than 100 lbs/day B.O.D. 100 lbs/day suspended solids and 50 lbs/day Nitrogen. The phosphorus loading should be kept



1 as low as possible. At 1.5 mgd and 0.1 ppm the
2 accepted criteria can be met (1.5 lbs/day). With
3 the present flow (approx. 2 mgd) and a realistic
4 effluent concentration of between 0.5 mg/l and
5 0.1 mg/l the maximum permitted loading will not be
6 met, but can be fairly closely approximated. I
7 would like to suggest a discharge limit of 5 lbs
8 of phosphorus per day. This will be difficult,
9 but not impossible, to meet. As this exceeds the
10 maximum permissible loading, this is a further
11 factor which would suggest that when the west end
12 of the marsh is dredged then a series of polishing
13 ponds should be constructed. This would restrict
14 the area of highly eutrophic conditions and
15 would tend to protect the rest of the marsh.

16 In the light of the very poor
17 planning involved, the complete inadequacy of the
18 proposed treatment plant design and the environmental
19 consequences of continuing in the present direction
20 and having heard what the Chairman says, I therefore
21 ask the Board to recommend to defer the approval
22 of this application as it stands until full
23 consideration of all these matters is presented
24 by the Regional Council. If, on the other hand,
25 the Board wishes to allow the proposed expansion



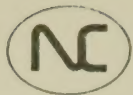
1 as an interim (but very poor) solution then they
2 must require the Region to present full and alterna-
3 tive plans within twelve months detailing either
4 the upgrading of this proposal to full tertiary
5 Nitrogen, Phosphorus and Carbon removal or detailing
6 plans to pump the effluent from this and future
7 plants elsewhere. If the Region plans to pump the
8 effluent elsewhere then they should show how they
9 intend to deal with this effluent in the long run.
10 Transferring the problem to Hamilton Harbour is
11 no solution. I give the Region clear warning that
12 the results of my present research on Hamilton
13 Harbour show that already the Harbour is seriously
14 polluted by municipal and industrial wastes and
15 that sooner or later the present scenario will be
16 repeated, but we will be talking about Hamilton
17 Harbour, not Coote's Paradise. The dumping of
18 Dundas sewage in the Harbour will surely bring
19 that day a little closer.

20 May I further suggest to the Board
21 that if interim approval is granted (as, to be
22 sure, a new basic unit is needed) then no further
23 subdivisions and developments be licensed until
24 the Region complies with the above daily loading
25 criteria. I am assuming that construction of the



1 proposed expansion cannot begin until -- I said
2 June -- but sometime next year. This would give
3 the Region plenty of time to show how they intend
4 to comply with the agreed water quality standards
5 for the marsh and with the above loading standards.
6 If they cannot show how they intend to meet these
7 loading standards then development should still
8 be frozen.

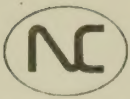
9 The question remains "whether the use
10 and operation of the proposed treatment plant
11 expansion would or would not be in the public
12 interest." The present plans show that the proposed
13 treatment plant will do little or nothing to
14 alleviate the pollution of Coote's Paradise and
15 further development (which we all know is pending)
16 will only make the situation worse. Any measure
17 which will result in no significant improvement
18 in the water quality of Coote's Paradise must be
19 regarded as certainly not in the public interest
20 of the people of the Region as a whole. I am
21 aware that more housing is needed. I am equally
22 aware of the importance of Coote's Paradise as
23 a regional asset and recreational resource. The
24 importance of that fact and this issue was, I
25 believe, adequately expressed by the electorate



1 in the recent Provincial election. From ecological,
2 recreational and political viewpoints it is clear
3 that the proposed treatment plant is inadequate
4 and must be either rejected or heavily amended
5 and only approved subject to stringent conditions
6 before it can be considered to be in the public
7 interest.

8 Apparently under pressure from other
9 interests, the Regional Council has so far chosen
10 to stall, ignore, sidetrack and discredit all
11 scientific studies, briefs and pleas from
12 citizens and independent qualified advisors.
13 I cannot sufficiently stress to you, gentlemen,
14 the members of the Board, the importance of the
15 factual basis of our objections to this proposal,
16 and the fact that all knowledgeable authorities
17 in the Region are unanimous in their opposition
18 to these plans. Those who wish to barge ahead
19 and build an inadequate plant are opting for the
20 "quick and dirty" solution.

21 There is no need to stall or study
22 any longer, the data is irrefutable and the
23 conclusion clear. At this hearing reason must
24 triumph over short term political and financial
25 interests. Coote's Paradise must be maintained



1 as a Regional resource for all time. We must not
2 delay any further, sufficient information is
3 available to the Board now, for it to take the
4 final correct decision and to ensure that this
5 is implemented. We as citizens ask that you weigh
6 the facts and use them. You, the members of the
7 Board, are our final hope that reason will prevail.

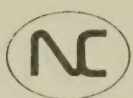
8 Thank you very much.

9 --- Applause.

10 THE CHAIRMAN: While a certain
11 amount of informality is allowed in our hearings,
12 we normally don't tolerate applause. I know it
13 is hard to contain yourselves, but would you,
14 please, ladies and gentlemen.

15 Before you sit down, Dr. Harris,
16 there may be some questions.

17 FROM THE FLOOR: My name is
18 Councillor John (inaudible). I was Chairman of
19 the Pollution Control Centre in 1962 when it was
20 built and I also listened to professional advice.
21 At that time one of the University professors who
22 also had a degree in Engineering, by the name
23 of Dr. Keith Murphy, who took great pride at the
24 various conventions in Ontario, pointing out the
25 most modern, most efficient pollution control we



1 had in Ontario.

2 Although I am not disagreeing with
3 what Dr. Harris is saying, because I am not a
4 professional man, but at that time as Chairman
5 of the Pollution Control Centre in Dundas I took
6 great pride to listen to Dr. Murphy when he used
7 to take students, not only from Parkside, but
8 students from McMaster University, pointing out
9 the model Pollution Control Centre that we had
10 in the Town of Dundas.

11 I just wanted Dr. Harris to answer
12 whether Dr. Keith Murphy was wrong or was there
13 something wrong with what he was telling us?

14 DR. HARRIS: Far be it from me to
15 even defend one of my colleagues. He is an
16 Engineer; I am a Biologist. Our skills are
17 somewhat different. I am quite sure when the
18 present plant was originally put in, it was
19 designed and operated in the best possible
20 fashion. Surely the problem with the existing
21 plant in Dundas is that it is merely now over-
22 capacity. I cast no aspersions on its operation
23 at all. These problems come to all plants when
24 they are run with greater than the normal amount of water
25 that, was designed to flow through them.



1 So I merely wish to point out that
2 building a secondary plant will improve the effluent,
3 but this is not sufficient, on an environmental
4 point of view.

5 MR. PLANT: On page 11 of your
6 statement you made a remark that I can't let pass.
7 You said:

8 "Apparently under pressure from
9 other interests, the Regional Council
10 has so far chosen to stall, ignore,
11 sidetrack and discredit all
12 scientific studies ..."

13 I would like you to point out who
14 the "other interests" are. If you don't know them,
15 I would request that you withdraw the remark.

16 DR. HARRIS: I have no idea who
17 the other interests are and I would be glad to
18 withdraw the remark.

19 MR. JOHN DAWTON: Mr. Chairman,
20 before this session is over - John Dawton, Dundas -
21 I have only been around for 50 years and I have
22 a letter here telling me that I should be here
23 today if I am interested in an extension of the
24 present sewage disposal plant.

25 THE CHAIRMAN: We will be glad to



1 hear you tomorrow.

2 MR. DAWTON: Later on, because I
3 understand Dr. Harris is not going to be here
4 tomorrow.

5 I would like to ask you one question
6 today, if I could. Is McMaster University
7 absolutely taken care of in their own sewage
8 requirements out there?

9 DR. HARRIS: I have no idea. Could
10 I ask my colleague? Any flow from McMaster will
11 be treated by the treatment plant on Wellington
12 Street.

13 MR. DAWTON: I understand that.
14 Well, I have a few more questions to ask, but not
15 today. These gentlemen's time is valuable. Mine
16 is not as valuable now as it was 50 years ago.

17 Thank you very much.

18 FROM THE FLOOR: There is one
19 point I would like to have clarified. In your
20 loading calculations, did you have any qualifications
21 that you were putting on Coote's Paradise versus
22 West Pond and should we then be looking at a
23 progressive system ---

24 DR. HARRIS: It is true that the
25 system is in reality somewhat more complicated

1 than my Brief explains. However, in the cause
2 of brevity, I did not wish to go into the entire
3 series of calculations. At present the West Pond
4 area is bearing the brunt of the outflow from
5 the plant and from these mining sediments.

6 At present the West Pond area is
7 in fact (inaudible) quite a bit of a nutrient
8 output, so nutrient output from West Pond is to
9 some extent lower by the time it reaches Spencer
10 Creek.

11 The point I wish to make in my
12 Brief is that essentially we are using West Pond
13 only as a biological nutrient removal system. I
14 do not find this acceptable in an area which is
15 essentially a conservation area.

16 Certainly we can do calculations
17 of the type I have outlined for, say, West Pond
18 and the Bay area separately. However, West Pond
19 is extremely small and I wonder sometimes how to
20 define calculations that were designed for lakes
21 and larger bodies of water to something so small
22 as that.

23 FROM THE FLOOR: You are confident
24 that you are in the right order of magnitude?

25 DR. HARRIS: As far as I can see, yes.



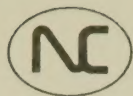
1 I appended to my Brief the calculations which I
2 used and I encourage people to check them over
3 and I would be prepared to sit down and yak about
4 them with anybody.

5 MR. VENCHIARUTTI: Previously I
6 asked the consultant to comment on the type of
7 effluent he was producing and he indicated that
8 he was improving the BOD, the suspended solids,
9 the phosphates and so on. I gather from your Brief
10 here, do you agree that he was improving these
11 various properties or do you disagree with the
12 BOD and phosphorus?

13 DR. HARRIS: No, no. The present
14 loadings which apparently are being put in and
15 the proposed loading for the proposed expansion,
16 it appears that Mr. Reichert agrees on these
17 figures.

18 MR. VENCHIARUTTI: The effluent
19 is improving?

20 DR. HARRIS: There is no denying
21 its improvement. There is a statement to that
22 effect in the Brief. However, the point I wish
23 to make very strong is that this is not sufficient
24 improvement for the water quality which we would
25 like to see.



1 MR. VENCHIARUTTI: Would you make
2 a suggestion, generally, without going through it
3 all as to what you would like to see?

4 DR. HARRIS: We are essentially
5 saying that the plant would require tertiary
6 treatment with either a (inaudible) some further
7 (inaudible)

8 MR. VENCHIARUTTI: To improve the
9 effluent to a degree, by tertiary treatment, that
10 you would be satisfied with, would costwise be
11 almost the same, I think you said, as pumping the
12 effluent to Hamilton Bay?

13 DR. HARRIS: I must say that is
14 not my area of expertise at all. Mr. Smith was
15 quoting Mr. Reichert in this respect.

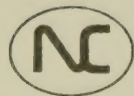
16 THE CHAIRMAN: Any further
17 questions?

18 Thank you, Dr. Harris.

19 DR. HARRIS: I have just one
20 question I would like to ask Mr. Reichert.

21 THE CHAIRMAN: Oh, yes.

22 DR. HARRIS: I merely wish to ask
23 Dr. Reichert if he feels generally that the plant
24 that he has designed will indeed have a significant
25 impact upon Coote's Paradise area and as a sewage



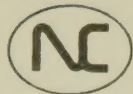
1 treatment engineer I would like to know what
2 sort of environmental criteria were taken into
3 consideration when the plant was designed.

4 The second question I would like to
5 ask him, if I may, does he feel that the plant
6 that he has designed would form a suitable basis
7 for further tertiary expansion, and here I am
8 thinking particularly in terms of aeration tank
9 breakdown and so on, and the fact is that you
10 have to have flow equalization for that stage.

11 MR. REICHERT: The effect on the
12 receiving water or the area aquatic life and so
13 forth, it is well understood that it is variable.
14 It depends on every location and every location
15 is different.

16 So, as far as we were able to go in
17 this particular project, we did achieve one goal
18 and that was to reduce the effect of the condition
19 that is now with us and is continuing. We can't
20 stop. So we do get an immediate improvement in
21 that respect.

22 Beyond that, the facilities we
23 have as far as the biological process, the type
24 of process itself, it can be added to to provide
25 additional treatment; research, storage and so

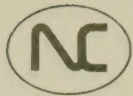


1 forth can be provided either ahead of the process
2 or following it. We have not at this time done
3 any exhaustive work along that line simply because
4 we did not know what design we had to meet. That
5 was an unknown; and almost anything is possible
6 within some economic framework.

7 The concern I want to express is
8 from our investigation and looking at plants
9 beyond Ontario, because there is only a limited
10 type of plants that can be viewed in Ontario,
11 although I will speak a little proudly of Ontario
12 if I can digress a little bit, and say that as
13 you travel around Ontario stands well by comparison
14 with anywhere else, as far as sewage treatment
15 is concerned.

16 But looking at the more sophisticated
17 processes that do exist in other locations, the
18 biggest problem with them seems to be a lack or
19 inability to maintain an effluent quality, even
20 though it is at times putting out a very good
21 effluent, it has failures, and these failures
22 if you will, a breakdown in the treatment process,
23 and the tertiary treatment unit, seem almost
24 to be uncontrollable.

25 So with some caution I would, if you



1 will, go into a tertiary treatment process that
2 requires an effluent standard that has been
3 outlined by Dr. Harris. I would think we would
4 have to look at all the options that may be
5 available and then see how they compare and
6 balance them out.

7 We ourselves, we have a concern
8 about this area. The Region has told us to be
9 concerned; we are not to ignore it; and we have
10 made different suggestions along the route as
11 far as outlet locations and they have been
12 changed three times now back to the present
13 location, until we know better. The study,
14 hopefully, will tell us.

15 I think that answers your questions,
16 Dr. Harris.

17 THE CHAIRMAN: Are there any
18 further questions?

19 Thank you.

20 -----

21 THE CHAIRMAN: Now, is there
22 anyone in the audience who wishes to participate
23 and who can't be here tomorrow?

24 MR. CHARLES E. CHANTER: Could I
25 ask some questions, please?



1 THE CHAIRMAN: Of who?

2 MR. CHANTER: This will involve
3 the Ministry of the Environment.

4 THE CHAIRMAN: They are going to
5 make a presentation later on. I would suggest -
6 are you going to be here tomorrow?

7 MR. CHANTER: No, I am not.

8 THE CHAIRMAN: Have you any questions
9 that you want of anybody who spoke today?

10 MR. CHANTER: Yes. These could
11 be very brief.

12 THE CHAIRMAN: Who do you want to
13 address your questions to?

14 MR. CHANTER: I would like - to
15 the engineer and I would like to ask a question
16 with regards to the restriction of, if this
17 expansion goes through, to the property to the
18 northeast of the secondary treatment plant.

19 THE CHAIRMAN: Could we get your
20 name first? What is your name?

21 MR. CHANTER: Mr. Charles E. Chanter.

22 THE CHAIRMAN: Were you here
23 earlier this afternoon?

24 MR. CHANTER: Yes.

25 THE CHAIRMAN: I am just wondering



1 why you did not ask that question when Mr. Reichert
2 was on the stand. Were you here then? You just
3 had second thoughts?

4 MR. CHANTER: Well, I wrote them
5 all down but ---

6 THE CHAIRMAN: All right, go ahead.

7 The reason I am saying this, ladies
8 and gentlemen, is if we don't follow some rules
9 we will get all in a mess and that is why I took
10 extreme care when Mr. Reichert was on to solicit
11 every question out of the audience. Now we have
12 a gentleman coming up with some more questions.
13 We will put Mr. Reichert on now and please, ladies
14 and gentlemen, when I dismiss him now he will be
15 dismissed permanently and I will not ask him to
16 come back. So if anybody else has any questions
17 of Mr. Reichert, please ask them now.

18 MR. CHANTER: One question I would
19 like to ask is, we had a great deal of aggravation
20 over the years, delegations coming to the Town Hall
21 on the smell emanating from the sewage plant and
22 I was wondering whether, with the capacity being
23 doubled, what controls could be placed on any
24 further aggravation, which is strictly in the
25 months of July and August, due to the hot, humid



1 weather?

2 MR. REICHERT: If I understand the
3 question correctly, and correct me if I am wrong,
4 in the plant process with the existing aeration
5 capacity and the existing plant in effect treating
6 less sewage than is now the case and that we feel
7 will clear part of the problem there. We will
8 provide aeration capacity to handle additional
9 sewage flows plus the waste activated sludge
10 out of the existing plant, so we again reduce
11 the loading on the existing plant somewhat and
12 the digest or return pipe would be brought to the
13 new plant instead of at the present location
14 essentially at the inlet of the existing plant,
15 where the digesters - it is a process that
16 produces hydrosulphate gases; it is quite
17 offensive; and it is now discharged into an
18 open channel and that is how the odours are
19 getting out.

20 We hope to correct that by bringing
21 it over to the present plant and putting it
22 directly into the aeration tank.

23 MR. CHANTER: Two, there is a
24 building shown on the lower southwest corner -
25 those other three buildings to the east don't



1 exist at the present time ---

2 MR. REICHERT: Right.

3 MR. CHANTER: The commercial
4 property on the north bank of the Canal, which
5 is southeast of the existing property where the
6 expansion is taking place, are these hooked in
7 with the present sewage system in the Town or
8 is there any possibility of this being hooked in
9 with the new expansion going in?

10 MR. REICHERT: Right now I don't
11 know if they are hooked into the present plant;
12 I can't answer that. I will find that answer out
13 and report it to the Board.

14 MR. CHANTER: Thank you. That is
15 all I have to ask the engineer.

16 I would like to ask one question,
17 if there would be any restrictions on the property
18 to the northeast of the plant, if this plant is
19 expanded to 4 million gallons per day capacity.
20 At the present time I believe the development
21 is under way and I understand the restrictions
22 limit the number of feet that the development
23 can start from, or any building placed on that
24 development.

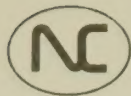
25 THE CHAIRMAN: I don't know whether



1 any of the Ministry of the Environment people
2 are prepared to answer that question or not.
3 Did you hear the question? The question is
4 regarding the limitation of building around this
5 plant. Would you like to repeat your question,
6 please?

7 MR. CHANTER: I would like to know
8 if there is a development to the northeast which
9 is undeveloped at the present time. It is just
10 bare land there. What are the limitations to be
11 placed on any development, as I saw the plan two
12 years ago it would be approximately 1,000 feet
13 north of the existing plant. If this plant is
14 expanded to 4 million capacity, would that extend
15 that distance?

16 MR. GLEN PEARCE: There is an
17 approval system in the Ministry which involves
18 saying, if you now bring a proposal forward for
19 approval you will approve it in the context of
20 what is its environment, what is its separation;
21 is it in a noise area; is it in a problem area.
22 If the plant were there first before it got its
23 approval, it would be considered in that context.
24 I know of no approval for that
25 development yet. It is a proposed development.



1 There is no subdivision projected yet for that
2 development that I know of, so it would have to
3 take its chances in the future.

4 MR. CHANTER: Thank you.

5 THE CHAIRMAN: Mr. Pearce, I think
6 that we will hear from you. You have submitted a
7 short Brief to the Board from the Ministry.
8 Would you like to proceed?

9 MR. PEARCE: Yes. Mr. Chairman,
10 in context of this Brief, the Ministry of the
11 Environment is in a situation of now dealing with
12 the problem in a local Regional context to the
13 West Central Region, our offices being in Stoney
14 Creek.

15 We, like the Regional Municipality
16 and the Town of Dundas and other - and other
17 problems that have been encountered with this
18 development, have taken a change in setting away.
19 We have had to pick up the problem of what is
20 happening in Cootes Paradise as our back door
21 over a year ago. So there has been some change
22 in the past. We are stating our position now.
23 I think a lot of the people who have dealt with
24 this plant have found this from us. We are now
25 citizens of the area as opposed to "those guys



1 from Queen's Park". So you can put it in that
2 context and from that point we will present what
3 our thoughts are.

4 I think when I am finished you will
5 see that we are standing here fairly neutral; we
6 feel there is an environment that has to be met
7 and it is going to be a case to do in the context
8 of what the environment will handle.

9 The Ministry of the Environment is in
10 agreement with the proposed upgrading to 4.0
11 million gallons per day of the Sewage Treatment
12 Plant in the Town of Dundas. This is considered
13 as a first step in improving conditions in the
14 Desjardin Canal-Cootes Paradise System in that
15 a much improved quality of effluent will be
16 possible.

17 This decision is based on the
18 consideration of the poor quality of effluent
19 presently being discharged to the Canal. This
20 along with the fact that the Canal has little
21 natural flow and the accumulated sludge from
22 previous plant discharges over many years has,
23 along with other sources, contributed to
24 undesirable water quality in the Canal and sections
25 of Cootes Paradise, namely the West Pond.



1 In conjunction with the plant
2 expansion, a study of Cootes Paradise to measure
3 the effect of the several sources of contamination
4 to Cootes and rate their significance in terms
5 of affecting water quality is being undertaken.
6 We have recorded significant loadings of
7 nutrients, suspended solids and BOD from Spencer
8 Creek into Cootes Paradise, as well as a substantial
9 input of nutrients, particularly phosphorous,
10 from the organic sediments in the Desjardin Canal.
11 The removal of these sediments will be evaluated
12 as a means of precluding nutrient regeneration
13 in the Canal waters, thus maintaining an improved
14 quality of discharge in the system.

15 This information will have a bearing
16 in determining the ultimate outfall location
17 and the degree of treatment that will be compatible
18 with the preservation of Cootes Paradise.

19 Reconstruction of the sewage treatment plant
20 should not be delayed until the results of the
21 study, which are expected to be available in the
22 spring of 1976, are finalized. The timing should
23 be such that any additional outfall or treatment
24 facilities found necessary by this Ministry
25 can be incorporated immediately into the plant.



1 We have looked at Cootes Paradise
2 and we find that there are any number of quality
3 levels that you could have in the Paradise, depending
4 on what you were going to do with it and why I
5 cannot give you a final answer now is just recently
6 the Region has adopted guidelines which were
7 brought forward by the Royal Botanical Garden
8 Conservation Authority and those guidelines were
9 not what you would call now water quality standards.
10 We consider them as a "use" package - we want
11 to use the Paradise for this and this and this.

12 The question that we feel we must
13 honestly answer in our mind is, what quality and
14 how do we get to it for that use. That is what
15 we aim for in the spring, but we feel now that
16 you can start on the basic plant providing you
17 plan on going right down through to where the
18 answer is. We don't feel that the answer will
19 lie in secondary, but we feel it will be an
20 answer that can be built in and be compatible
21 with the present proposals.

22 THE CHAIRMAN: Any questions of
23 Mr. Pearce?

24 FROM THE FLOOR: Are you suggesting---

25 MR. PEARCE: We are suggesting



1 nothing right now. We are proposing that the
2 plant be started because the packages that generally
3 the Ministry of the Environment feel will work
4 well and have had experience with in Ontario are
5 based upon the basic secondary plant to start with,
6 and we add modules.

7 FROM THE FLOOR: So what you are
8 really asking for then is you are asking for
9 release and permission to start on the secondary
10 plant. I consider that you can't start until
11 late fall so that the release should not be given
12 until your study is complete.

13 MR. PEARCE: No, I did not say that.

14 FROM THE FLOOR: It sounded like
15 that.

16 MR. PEARCE: I said if you objected
17 that the plant should not wait for the study in
18 July. To get your plant to the stage we are at
19 now, you have to go through your final design;
20 your final design approval; you have to consider
21 your contractors; and you have got a long route.

22 At the earliest they could possibly
23 go is 7 or 8 months from now if they got permission
24 tomorrow. Why wait until March or April or May
25 and then start seven or eight months down the road



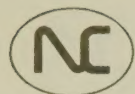
1 from there? We feel the question is having a
2 secondary plant that is compatible with going into
3 the future. In the next seven months we will
4 iron out those problems, but the secondary plant
5 would be compatible with the additions, whatever
6 were necessary.

7 MS. LENA CHAPPELL: Does that
8 mean there is an addition put on the proposed
9 sewage plant?

10 MR. PEARCE: We feel there is an
11 understanding with the Region that work will
12 continue as necessary, whether secondary or
13 outfalls, if the Board deems fit to say that the
14 approval should be given now with the condition
15 that there would be more going. That is the
16 Board's option, and we are easy on it and we will
17 accept their wisdom on it.

18 MS. CHAPPELL: If you are advising
19 that there should be a tertiary plant or some
20 sort of system ---

21 MR. PEARCE: We are confident
22 that there has to be more than a secondary plant.
23 We had discussions going with the Region that
24 says the Region will go to more than secondary
25 plant. If you feel that it is necessary that this



1 approval go forward, that a condition be placed
2 on that approval certificate, we won't disagree.

3 MR. VENCHIARUTTI: This total
4 package that you end up with, if you feel costs
5 as much as pumping it to Hamilton Bay, then you
6 would be committed in one direction, would you
7 not?

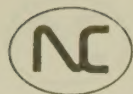
8 MR. PEARCE: You are speaking of
9 a total package being the present plus the
10 secondary?

11 MR. VENCHIARUTTI: Plus whatever
12 modules you are adding to get the quality of
13 effluent that you feel the environment ---

14 MR. PEARCE: I feel the module
15 may include a pipe. If I left that out, I am sorry,
16 but a module could be a pipe to Hamilton; it
17 could be another treatment package and a pipe to
18 Hamilton; or there could be lots of treatment
19 packages but we can't see any configuration of
20 treatment that would do away with the present
21 proposal.

22 THE CHAIRMAN: In other words,
23 that is basic to whatever ---

24 MR. PEARCE: That is the basic
25 we see; that is the starting point.



1 THE CHAIRMAN: That is your position?

2 MR. PEARCE: Yes.

3 THE CHAIRMAN: I understand.

4 Mr. Smith, do you have a question?

5 MR. SMITH: Yes. I take it, sir,

6 you are in no substantial disagreement with the

7 figures provided in the Brief of Dr. Harris

8 regarding the quality at Cootes Paradise?

9 MR. PEARCE: Existing quality,

10 we can agree with the figures. Calculations, we

11 have not seen them in enough time to go through

12 them.

13 MR. SMITH: Roughly speaking -

14 you would like to see the calculations of course,

15 sir - but you don't for instance believe that

16 they are vastly overstated or anything of this

17 kind?

18 MR. PEARCE: No.

19 MR. SMITH: No reason to believe

20 they are out of the ball park?

21 MR. PEARCE: No.

22 MR. SMITH: And you are confident

23 here - I am not an engineer, sir, and I would

24 appreciate knowing just how confident you are.

25 Are you confident that that plant as presently



1 drawn on that piece of paper is the absolutely
2 most efficient way to start building an advanced
3 sewage plant, which will require a possible
4 tertiary process, or do you think there could be
5 any possible utility and efficiency in designing
6 a proper one or the eventual one from the very start,
7 afresh, rather than adding on piecemeal?

8 MR. PEARCE: The proposal we see
9 is that there is a question; if you start to add
10 to the plant, number one, you may need more land.
11 Technically we are looking at the fact that we
12 can't provide treatment. There may be in the
13 approvals process that will be coming forward, at
14 least the certificate is pending or if the
15 development is agreed to, a review; or there will
16 be a review that may say we perhaps should put
17 three tanks in instead of one big one. This is
18 in the approval system and I don't think we are
19 prepared to say now that we think that plant
20 could be up to 20 per cent more reliable or 30
21 per cent more reliable or less reliable.

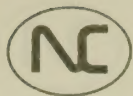
22 MR. SMITH: With respect, may I
23 ask you a supplementary question? With respect,
24 sir, it seems to me we are going to have a choice
25 of a pipe or a tertiary process. I don't want to



1 put words in your mouth - it is unfair and
2 unsanitary - but we are going to basically have
3 either a pipe or a tertiary process added on to
4 this. Fundamentally that is what you are saying
5 is your best guess right now.

6 If we know we are going to have
7 either a pipe or a tertiary process added on to
8 this, and we know that roughly speaking a pipe
9 will only take poorly treated sewage and put it
10 into our Bay, it makes more sense to me to treat
11 it now so, (a) if it is a pipe, that doesn't make
12 any sense at all. Secondly, if it is to be a
13 tertiary process, then I ask you to reconsider.
14 Does it not make more sense to you, from your
15 experience, to build, to design the eventual one
16 in the first place rather than design one and
17 then hope to modify it?

18 MR. PEARCE: There are not just
19 two alternatives to start with. There are pipes;
20 there are tertiary processes; and there are
21 environmental enhancements. The Ministry now is
22 in the process of an environmental enhancement
23 in Hamilton Harbour. We are trying to assist
24 the Harbour and increase its capacity through
25 aeration programs. So we are weighing this up, and



1 environmental enhancement would be applicable in
2 Cootes may be the removal of sludges in some or
3 all parts. Maybe it is more damaging to remove
4 all the sludge, maybe only some of it.

5 So, we foresee an answer coming in
6 the Spring that will include and/or a minimum of
7 a couple of those, possibly three of them, we are
8 not sure; but we feel it is better to first not
9 to miss an outfall to somewhere down the Desjardins
10 Canal where we might not find it is practical to
11 keep it or it is not doing the best thing. We are
12 keeping our option open as to where the outfall
13 should go.

14 With respect to designing of the whole
15 plant or partial plant, sewage treatment, as I
16 understand it, is a process of settling in the
17 primary portion of a plant; then there is the basic
18 package of biological treatment in the secondary
19 portion of the plant; then there is the nutrient
20 removal package that we are integrating into those
21 first two portions, by an international agreement.
22 Then we will start beyond that. Whether we are
23 satisfied with a simple sand filter, carbon exchange,
24 iron exchange, carbon columns, whatever, these
25 are packages that rely upon a very good quality



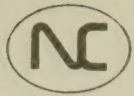
1 of effluent coming off the end of the secondary
2 plant.

3 I believe your consultant for the
4 Region can comment on some of these problems, but
5 I feel he would have to rely upon a very good level
6 of treatment. He could not, say, pick up one of
7 these tertiary treatment units and put it on the
8 end of the existing plant because it would not
9 work and this is the way that our approvals process
10 would look at it. There are units of treatment
11 added together to make a big unit.

12 Any other questions?

13 MR. GEORGE SNOW: Yes, sir. If
14 you pipe the sewage to Hamilton, you would not
15 have the problem solved. You would still have to
16 treat the sewage. If you spend \$15,000,000 to
17 build a pipe, why not build a \$15,000,000 plant
18 to take care of the sewage - a sewage plant?

19 MR. SMITH: I was referring to the
20 statement in here made earlier. He spoke of a
21 pipe which would take the treated sewage from
22 this plant and put it right into the middle of
23 Hamilton Bay. He said that is much the same as
24 a tertiary plant. I said, if that is the case,
25 why not treat it in the first place.



1 THE CHAIRMAN: Any other questions?

2 FROM THE FLOOR: I was interested
3 in your allegation that a tertiary plant to be
4 effective requires a pretty good quality of
5 effluent from the secondary plant.

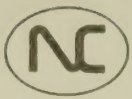
6 MR. PEARCE: Yes.

7 FROM THE FLOOR: I can see that.
8 What are the implications of that, for the present
9 proposal? Is it suggested that the effluent from
10 the proposed plant would not be good enough for
11 tertiary treatment?

12 MR. PEARCE: If the Ministry were
13 reviewing a request from the Region saying, we
14 are going to do everything, we are going to leave
15 the existing plant and just put this tertiary
16 super package on the end, we would sit back and
17 say, prove it, we don't think it would work.

18 This would be the approach we would
19 take on approval, because the experience that our
20 people have had in overseeing and inspecting and
21 watching plants at work says that you have to
22 have a good effluent before you can make the
23 third step work.

24 FROM THE FLOOR: It may well be
25 that the effluent that is proposed to put into



1 Cootes Paradise isn't even good enough to put into
2 another sewage plant, is that right?

3 MR. PEARCE: Dr. Harris made the
4 allegation that we are overloading the system
5 more so than design, but the effluent that is being
6 proposed would be in those design criteria that the
7 Ministry feels are the qualities that you have to
8 have to start on the tertiary treatment.

9 THE CHAIRMAN: I think there is a
10 little confusion here. What you were thinking of
11 was putting a tertiary treatment on the existing
12 plant. Is that not what you were thinking of?

13 FROM THE FLOOR: It's a possibility,
14 yes.

15 THE CHAIRMAN: And what Mr. Pearce
16 is saying is, no, we can't do that. We would have
17 to add on to up-grade the effluent from the secondary
18 plant before you could put it through the tertiary.

5 19 FROM THE FLOOR: It might be possible
20 to design something that would be flexible, that
21 would allow for the possibility of tertiary.

22 MR. PEARCE: This is what we intend
23 to look for in approval.

24 THE CHAIRMAN: Any other questions
25 before we adjourn?



1 MR. PLANT: One brief question,
2 Mr. Pearce. Point of clarification, is not the
3 proposed secondary treatment expansion compatible
4 with the alternative tertiary treatment and the
5 outfall to Hamilton Harbour?

6 MR. PEARCE: From what we understand
7 now, yes.

8 THE CHAIRMAN: We will stand
9 adjourned until 9:30 tomorrow morning.

10 --- Hearing adjourned until 9:30 Wednesday, October
11 22nd, 1975.

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